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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/561,594

12/20/2005

David Philip Williams

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21839

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04/09/2008

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EXAMINER

TRAN, HOANG Q

ART UNIT

PAPER NUMBER

2874

NOTIFICATION DATE

DELIVERY MODE

04/09/2008

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ADIPFDD@bipc.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/561,594	<b>Applicant(s)</b> WILLIAMS ET AL.	
	<b>Examiner</b> HOANG TRAN	<b>Art Unit</b> 2874	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 08 January 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) 1-4 and 31-34 is/are rejected.
- 7) ☒ Claim(s) 5-29 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Claim Objections***

Claims 5-29 objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim 4 (See MPEP § 608.01(n)). Accordingly, the claims 5-29 not been further treated on the merits.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-3, are rejected under 35 U.S.C. 102(e) as being anticipated by Wadsworth et al (US 2004/0151450 A1).

In terms of claim 1, Wadsworth discloses an elongate waveguide for guiding light, comprising: a core region (Fig. 7 '430'), comprising an elongate region of relatively low refractive index; and a cladding region (440, 450), comprising elongate regions of relatively low refractive index (440) interspersed with elongate regions of relatively high refractive index (450), including, in a transverse cross-section of the waveguide,

a relatively high refractive index boundary region that surrounds the core region and has either (1) at most two-fold rotational symmetry or (2) a rotational symmetry that reduces the rotational symmetry of the waveguide to at most two-fold rotational symmetry, the symmetry of the boundary region resulting at least in part from azimuthal variations therein, which are substantially uncharacteristic of the cladding region (the two fold rotational symmetry is visible in Fig. 7 and Paragraph [0026]).

Regarding claims 2-3, the two-fold rotation symmetry at least in part due to azimuthal variations in its thickness, shape, refractive index, or other material properties (Para [0026] and [0035]).

Claims 31-34 are rejected under 35 U.S.C. 102(e) as being anticipated by Wadsworth et al. (US 2004/0151450 A1).

Wadsworth discloses a method of forming a photonic crystal fibre including the steps: forming a preform comprising an elongate (Figure 7), relatively low refractive (430) index core region, and, surrounding the core region, an elongate cladding region (440 and 450), comprising elongate regions of relatively low refractive index (440) interspersed with elongate regions of relatively high refractive index (450 or 470); forming, at the interface between the core region and the cladding region (440 and 450), a boundary region, comprising one or more relatively high refractive index regions (450), which has at most two-fold rotational symmetry due to azimuthal variations, which are uncharacteristic of the cladding region; and drawing the pre-form into a fibre, which has no more than two-fold rotational symmetry about any longitudinal axis (Paragraph [0026] and [0035]). The preform is formed from a plurality of elongate members at least

some of which are capillaries (Abstract), in which the preform is formed by extrusion. The arrangement of the capillaries are done in a stacking manner and followed by drawing the preform stack into a fiber.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wadsworth in view of Han (US 7,106,933 B2).

Wadsworth discloses the invention of claim 1, however, Wadsworth does not disclose boundary nodes around the core region wherein the nodes being joined between two boundary veins and to at least one relatively high refractive index region of the cladding region.

Han discloses a photonic crystal fiber for high frequency transmission wherein the boundary nodes around the core region wherein the nodes being joined between two boundary veins and to at least one relatively high refractive index region of the cladding region (Figs. 2 and 8 , please note the end to end of the veins joining around the core). Furthermore, the boundary region has at most two-fold rotation symmetry at least in part do to one or more boundary veins having a different thickness, shape, length, refractive index or other material property than other boundary veins (col. 2, line

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65 – col. 3, line 5 and col. 7 lines 1-7). It would have been obvious to one having ordinary skill in the art to recognize the packing configuration in the instant case is a kagome lattice wherein the motivation for such configuration is high efficiency and high density packing in a confined region.

### ***Response to Arguments***

Applicant's arguments, see remarks, filed 01/08/2008 with respect to Claim 1 have been fully considered and are persuasive. The non final rejection of 08/08/2007 has been withdrawn. However upon further consideration the examiner has found that the prior art to Wadsworth reads on to the limitations of Claim 1-4. Hence new grounds of rejection were established in view of the prior art to Wadsworth.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hoang Tran whose telephone number is 571-272-5049. The examiner can normally be reached on 9:00AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on 571-272-2344. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Ht

Hoang Tran  
AU 2874  
March 31, 2008

/Sung H. Pak/

Primary Examiner, Art Unit 2874